

**LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROSIDING ILMIAH**

Judul Karya Ilmiah/Artikel : Physical Characteristics of Phycocyanin From Spirulina Microcapsules Using Different Coating Materials With Freeze Drying Method

Jumlah Penulis : 3 (tiga)

Status Pengusul : Penulis pertama/ ~~penulis ke 2~~/ ~~penulis korespondensi **~~

Penulis Karya Ilmiah : Eko Nurcahya Dewi, Lukita Purnamayati, Retno Ayu Kurniasih

Identitas Karya Ilmiah : a. Nama Prosiding : IOP Conf. Series :
Earth and Environmental Science.
b. No. ISBN : -
c. Tahun Terbit, : 2017
Tempat Pelaksanaan : Semarang - Indonesia
d. Penerbit : IOP
e. Alamat web prosiding :
<http://iopscience.iop.org/article/10.1088/1755-1315/55/1/012060>
Alamat web artikel :
<http://iopscience.iop.org/article/10.1088/1755-1315/55/1/012060/pdf>
g. Terindeks di (jika ada) : Scopus

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(beri ✓ pada kategori yang tepat) ☐ Prosiding Forum Ilmiah Nasional.....

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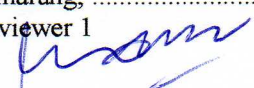
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a. Kelengkapan unsur isi paper (10%)	3		3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9		5.7
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9		8.7
d. Kelengkapan unsur dan kualitas terbitan/prosiding (30%)	9		9
Total = (100%)	30		26.4
Nilai Pengusul =		60% =	15.84

Catatan Penilaian Paper oleh Reviewer : sesuai kompetensi pengusul, Tur-
nir 10%. Mencari material pembungkus pigmen bi-
ru 78 dihasilkan mikroalga. Pigmen tsb hanya
antioxidiser & produk alamiah langka sbg pewarna
non-artifisial. Kandidat terbitan adlh alginat &
kappa-karaginan mlu mikroenkapsulasi fiko-
sianin tsb. Sumber data Dikti 2016.

$\Sigma \text{maksud} = 36$

$\text{maksud} = \frac{35}{36} = 97.2$
(72006) $= \frac{29}{30} \times 9 = 8.7$

$\text{Diskusi} = \frac{15}{36} = 41.7$
 $= \frac{19}{30} \times 9 = 5.7$

Semarang, 22/11/2018.
Reviewer 1

Prof. Norma Afiati, M.Sc., Ph.D
NIP. 195511101982032001
Unit kerja : FPIK UNDIP

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Nilai Pengusul =			17.22

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 ~ Kelengkapan isi paper baik
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 ~ Substantive publication, comprehensive dan aplikatif teknologi
 ~ Kedalaman pembahasan = $18/36 = 50\% = \frac{26}{30} \times 9 = 7.8$
 ~ Kemutakhiran informasi = $35/36 = 97.2\% = \frac{30}{30} \times 9 = 9$
 ~ Similarly 10% dan student paper 5%

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 Reviewer 2


 Prof. Dr. Ir. Slamet Budi Prayitno, M.Sc
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Volume 55, Issue 1, 1 March 2017, Article number 012060
2nd International Conference on Tropical and Coastal Region Eco Development 2016, ICTCRED
2016; Bali; Indonesia; 25 October 2016 through 27 October 2016; Code 126824

Physical characteristics of phycocyanin from spirulina microcapsules using different coating materials with freeze drying method (Conference Paper) (Open Access)

Dewi, E.N. , Purnamayati, L., Kurniasih, R.A.
Faculty of Fisheries and Marine Science, Diponegoro University, Jl. Prof. Soedarto, SH, Semarang, 50275, Indonesia

Abstract

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The aim of this study was to compare the physical characteristics of phycocyanin microcapsules (F) from *Spirulina* sp. with different coating materials, such as κ-Carrageenan (C) and Na-alginate (A) in combination with maltodextrin (M) by freeze drying method. Microcapsules were prepared in three variations of coating materials i.e. maltodextrin (FM); maltodextrin and Na-alginate (FMA); and maltodextrin and carrageenan (FMC) with concentration of each materials were 10%; 9%:1.0%; and 9%:1% (w/w), respectively. The results showed that FMA with Na-alginate 1.0% produced the highest bulk density and total soluble solid, there were 0,334 g/ml and 9,067%, respectively. Color analysis by chromameter showed that FMC produced the bluest color compared to other samples. The glass transition temperature (Tg) investigated with Differential scanning calorimeter (DSC) in all of the samples. © Published under licence by IOP Publishing Ltd.

SciVal Topic Prominence

Topic: Spray drying | Drug Compounding | wall materials

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Carrageenan Maltodextrin Na-alginate Phycocyanin Physical Characteristics

Indexed keywords

Engineering controlled terms: Alginate Coastal zones Coatings Differential scanning calorimetry Glass transition Low temperature drying Microstructure Plating Sodium

Engineering uncontrolled terms: Carrageenans Maltodextrins Na-alginate Phycocyanin Physical characteristics

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Phycocyanin stability in microcapsules processed by spray drying method using different inlet temperature
Purnamayati, L. , Dewi, E.N. , Kurniasih, R.A. (2018) IOP Conference Series: Earth and Environmental Science

Effect of Different Coating Materials on the Characteristics of Chlorophyll Microcapsules from *Caulerpa racemosa*
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References (36)

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- ☐ 1 Allam, K.V., Kumar, G.P.
Colorants - the cosmetics for the pharmaceutical dosage forms
(2011) *International Journal of Pharmacy and Pharmaceutical Sciences*, 3 (SUPPL. 3), pp. 13-21. Cited 21 times.
<http://www.ijppsjournal.com/Vol3Suppl3/2152.pdf>
- ☐ 2 Bertolin, T.E., Farias, D., Guarienti, C., Petry, F.T.S., Colla, L.M., Costa, J.A.V.
Antioxidant effect of phycocyanin on oxidative stress induced with monosodium glutamate in rats
(2011) *Brazilian Archives of Biology and Technology*, 54 (4), pp. 733-738. Cited 11 times.
1516-8913
- ☐ 3 Chaiklahan, R., Chirasuwan, N., Bunnag, B.
Stability of phycocyanin extracted from *Spirulina* sp.: Influence of temperature, pH and preservatives
(2012) *Process Biochemistry*, 47 (4), pp. 659-664. Cited 77 times.
doi: 10.1016/j.procbio.2012.01.010
[View at Publisher](#)
- ☐ 4 Yan, M., Liu, B., Jiao, X., Qin, S.
Preparation of phycocyanin microcapsules and its properties
(2014) *Food and Bioprocess Processing*, 92 (1), pp. 89-97. Cited 22 times.
doi: 10.1016/j.fbp.2013.07.008
[View at Publisher](#)
- ☐ 5 Chanana, A., Kataria, M.K., Sharma, M., Bilandi, A.
Microencapsulation: Advancements in applications
(2013) *International Research Journal of Pharmacy*, 4, pp. 1-5. Cited 3 times.
- ☐ 6 Necas, J., Bartosikova, L.
Carrageenan: A review (Open Access)
(2013) *Veterinarni Medicina*, 58 (4), pp. 187-205. Cited 189 times.
<https://www.agriculturejournals.cz/publicFiles/91236.pdf>
doi: 10.17221/6758-VETMED
[View at Publisher](#)
- ☐ 7 Lee, K.Y., Mooney, D.J.
Alginate: Properties and biomedical applications
(2012) *Progress in Polymer Science (Oxford)*, 37 (1), pp. 106-126. Cited 1828 times.
<http://www.sciencedirect.com/science/journal/00796700>
doi: 10.1016/j.progpolymsci.2011.06.003
[View at Publisher](#)

The Application of
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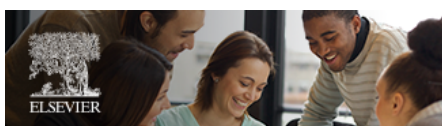
Antioxidant activities of
phycocyanin microcapsules using
maltodextrin and carrageenan as
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(2016) *Jurnal Teknologi*

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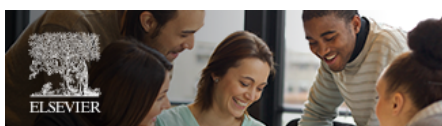
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- ☐ 8 Dewi, E.N., Purnamayati, L., Kurniasih, R.A.
Antioxidant activities of phycocyanin microcapsules using maltodextrin and carrageenan as coating materials
(2016) *Jurnal Teknologi*, 78 (4-2), pp. 45-50. Cited 5 times.
<http://www.jurnalteknologi.utm.my/index.php/jurnalteknologi/article/download/8151/4924>
-
- ☐ 9 Ton, N.M.N., Tran, T.T.T., Le, V.V.M.
Microencapsulation of rambutan seed oil by spray-drying using different protein preparations
(2016) *International Food Research Journal*, 23 (1), pp. 123-128. Cited 3 times.
[http://www.ifrj.upm.edu.my/23%20\(01\)%202016/\(19\).pdf](http://www.ifrj.upm.edu.my/23%20(01)%202016/(19).pdf)
-
- ☐ 10 Marcela, F., Lucia, C., Esther, F., Elena, M.
Microencapsulation of L-ascorbic acid by spray drying using sodium alginate as wall material
(2016) *Journal of Encapsulation and Adsorption Sciences*, 6 (1), pp. 1-8. Cited 2 times.
2161-4865 6
-
- ☐ 11 Fernandes, R.V.B., Borges, S.V., Botrel, D.A.
Influence of spray drying operating conditions on microencapsulated rosemary essential oil properties (Open Access)
(2013) *Ciencia e Tecnologia de Alimentos*, 33 (SUPPL. 1), pp. 171-178. Cited 27 times.
<http://www.scielo.br/pdf/cta/v33s1/v33s1a25.pdf>
doi: 10.1590/S0101-20612013000500025

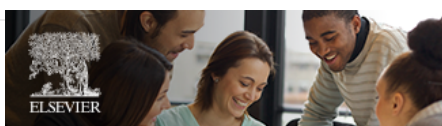
View at Publisher
-
- ☐ 12 Amid, M., Manap, Y., Zohdi, N.K.
Microencapsulation of purified amylase enzyme from pitaya (*hylocereus polyrhizus*) peel in arabic gum-chitosan using freeze drying (Open Access)
(2014) *Molecules*, 19 (3), pp. 3731-3743. Cited 12 times.
<http://www.mdpi.com/1420-3049/19/3/3731/pdf>
doi: 10.3390/molecules19033731

View at Publisher
-
- ☐ 13 Isailović, B., Kalušević, A., Žuržul, N., Coelho, M.T., Dordević, V., Alves, V.D., Sousa, I., (...), Nedović, V.A.
Microencapsulation of natural antioxidants from *Pterospartum tridentatum* in different alginate and inulin systems
(2012) *CEFood 2012 - Proceedings of 6th Central European Congress on Food*, pp. 1075-1081. Cited 4 times.
-
- ☐ 14 Wilkowska, A., Ambroziak, W., Czyzowska, A., Adamiec, J.
Effect of Microencapsulation by Spray-Drying and Freeze-Drying Technique on the Antioxidant Properties of Blueberry (*Vaccinium myrtillus*) Juice Polyphenolic Compounds (Open Access)
(2016) *Polish Journal of Food and Nutrition Sciences*, 66 (1), pp. 11-16. Cited 24 times.
<http://www.degruyter.com/view/j/pjfn.2012.62.issue-4/issue-files/pjfn.2012.62.issue-4.xml>
doi: 10.1515/pjfn-2015-0015

View at Publisher
-



- ☐ 15 Nunes, I.L., Mercadante, A.Z.
Encapsulation of lycopene using spray-drying and molecular inclusion processes
([Open Access](#))
(2007) *Brazilian Archives of Biology and Technology*, 50 (5), pp. 893-900. Cited 49 times.
http://www.scielo.br/scielo.php?script=sci_issues&pid=1516-8913&lng=en&nrm=iso
doi: 10.1590/S1516-89132007000500018
[View at Publisher](#)
-
- ☐ 16 Rao, T.V., Vidhyadhara, S.
Formulation and in vitro evaluation of indomethacin microcapsules
(2012) *International Journal of Chemical Sciences*, 10 (1), pp. 1-8.
[http://www.sadgurupublications.com/ContentPaper/2012/1_1343_10\(1\)2012.pdf](http://www.sadgurupublications.com/ContentPaper/2012/1_1343_10(1)2012.pdf)
-
- ☐ 17 (2005)
Association of Official Analytical Chemist (Washington, United States: AOAC) Official Methods of Analysis
-
- ☐ 18 Saha, A.K., Ray, S.D.
Effect of cross-linked biodegradable polymers on sustained release of sodium diclofenac-loaded microspheres ([Open Access](#))
(2013) *Brazilian Journal of Pharmaceutical Sciences*, 49 (4), pp. 873-888. Cited 8 times.
<http://www.scielo.br/pdf/bjps/v49n4/v49n4a28.pdf>
doi: 10.1590/S1984-82502013000400028
[View at Publisher](#)
-
- ☐ 19 Krishnaiah, D., Sarbatly, R., Nithyanandam, R.
Microencapsulation of Morinda citrifolia L. extract by spray-drying
(2012) *Chemical Engineering Research and Design*, 90 (5), pp. 622-632. Cited 54 times.
doi: 10.1016/j.cherd.2011.09.003
[View at Publisher](#)
-
- ☐ 20 Tonon, R.V., Grosso, C.R.F., Hubinger, M.D.
Influence of emulsion composition and inlet air temperature on the microencapsulation of flaxseed oil by spray drying
(2011) *Food Research International*, 44 (1), pp. 282-289. Cited 204 times.
doi: 10.1016/j.foodres.2010.10.018
[View at Publisher](#)
-
- ☐ 21 Samakradhamrongthai, R., Thakeow, P., Kopermsub, P., Utama-Ang, N.
Encapsulation of Michelia alba D.C. Extract using spray drying and freeze drying and application on Thai dessert from rice flour
(2015) *International Journal of Food Engineering*, 1, pp. 77-85. Cited 2 times.
-
- ☐ 22 Rhein-Knudsen, N., Ale, M.T., Meyer, A.S.
Seaweed hydrocolloid production: An update on enzyme assisted extraction and modification technologies ([Open Access](#))
(2015) *Marine Drugs*, 13 (6), pp. 3340-3359. Cited 58 times.
<http://www.mdpi.com/1660-3397/13/6/3340/pdf>
doi: 10.3390/md13063340
[View at Publisher](#)



- ☐ 23 Amid, B.T., Mirhosseini, H., Poorazarang, H., Mortazavi, S.A.
Implications of partial conjugation of whey protein isolate to durian seed gum through maillard reactions: Foaming properties, water holding capacity and interfacial activity ([Open Access](#))

(2013) *Molecules*, 18 (12), pp. 15110-15125. Cited 11 times.
<http://www.mdpi.com/1420-3049/18/12/15110/pdf>
doi: 10.3390/molecules181215110

[View at Publisher](#)
-
- ☐ 24 Moon, S.C., Farris, R.J.
Electrospinning of heated gelatin-sodium alginate-water solutions

(2009) *Polymer Engineering and Science*, 49 (8), pp. 1616-1620. Cited 16 times.
<http://www3.interscience.wiley.com/cgi-bin/fulltext/122413794/PDFSTART>
doi: 10.1002/pen.21355

[View at Publisher](#)
-
- ☐ 25 Mehrad, B., Shabanpour, B., Jafari, S.M., Pourashouri, P.
Characterization of dried fish oil from menhaden encapsulated by spray drying

(2015) *AACL Bioflux*, 8 (1), pp. 57-69. Cited 8 times.
<http://www.bioflux.com.ro/docs/2015.57-69.pdf>
-
- ☐ 26 Mandal, S., Senthil Kumar, S., Krishnamoorthy, B., Basu, S.K.
Development and evaluation of calcium alginate beads prepared by sequential and simultaneous methods ([Open Access](#))

(2010) *Brazilian Journal of Pharmaceutical Sciences*, 46 (4), pp. 785-793. Cited 40 times.
<http://www.scielo.br/pdf/bjps/v46n4/21.pdf>
doi: 10.1590/S1984-82502010000400021

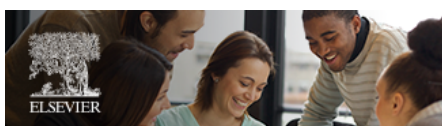
[View at Publisher](#)
-
- ☐ 27 Tako, M.
The principle of polysaccharide gels
(2015) *Advances in Bioscience and Biotechnology*, 6 (1), pp. 22-36. Cited 17 times.
2156-8456 6
-
- ☐ 28 Martins, I.M., Barreiro, M.F., Coelho, M., Rodrigues, A.E.
Microencapsulation of essential oils with biodegradable polymeric carriers for cosmetic applications

(2014) *Chemical Engineering Journal*, 245, pp. 191-200. Cited 94 times.
doi: 10.1016/j.cej.2014.02.024

[View at Publisher](#)
-
- ☐ 29 Naik, A., Meda, V., Lele, S.S.
Freeze drying for microencapsulation of α -linolenic acid rich oil: A functional ingredient from *Lepidium sativum* seeds

(2014) *European Journal of Lipid Science and Technology*, 116 (7), pp. 837-846. Cited 6 times.
<http://www3.interscience.wiley.com/journal/69502350/home>
doi: 10.1002/ejlt.201300305

[View at Publisher](#)
-



- ☐ 30 Belščak-Cvitanovic, A., Bušić, A., Barišić, L., Vrsaljko, D., Karlović, S., Špoljarić, I., Vojvodić, A., (...), Komes, D.

Emulsion templated microencapsulation of dandelion (*Taraxacum officinale* L.) polyphenols and β -carotene by ionotropic gelation of alginate and pectin

(2016) *Food Hydrocolloids*, 57, pp. 139-152. Cited 18 times.
doi: 10.1016/j.foodhyd.2016.01.020

[View at Publisher](#)

- ☐ 31 Holkem, A.T., Raddatz, G.C., Nunes, G.L., Cichoski, A.J., Jacob-Lopes, E., Ferreira Grosso, C.R., de Menezes, C.R.

Development and characterization of alginate microcapsules containing *Bifidobacterium* BB-12 produced by emulsification/internal gelation followed by freeze drying

(2016) *LWT - Food Science and Technology*, 71, pp. 302-308. Cited 12 times.
<http://www.elsevier.com/inca/publications/store/6/2/2/9/1/0/index.htm>
doi: 10.1016/j.lwt.2016.04.012

[View at Publisher](#)

- ☐ 32 Karthik, P., Anandharamakrishnan, C.

Microencapsulation of Docosahexaenoic Acid by Spray-Freezing-Drying Method and Comparison of its Stability with Spray-Drying and Freezing-Drying Methods

(2013) *Food and Bioprocess Technology*, 6 (10), pp. 2780-2790. Cited 33 times.
doi: 10.1007/s11947-012-1024-1

[View at Publisher](#)

- ☐ 33 Dewi, E.N., Darmanto, Y.S., Ambariyanto
Characterization and quality of semi-refined carrageenan (SCR) products from different coastal waters based on fourier transform infrared technique

(2012) *Journal of Coastal Development*, 16, pp. 25-31. Cited 15 times.
1410-5217

- ☐ 34 Fertah, M., Belfkira, A., Dahmane, E., Taourirte, M., Brouillette, F.
Extraction and characterization of sodium alginate from moroccan laminaria digitata brown seaweed

(2014) *Arabian Journal of Chemistry*, pp. 1-8. Cited 6 times.

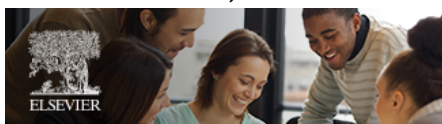
- ☐ 35 Kouassi, G.K., Teriveedhi, V.K., Milby, C.L., Ahmad, T., Boley, M.S., Gowda, N.M., Terry, R.J.
Nano-microencapsulation and controlled release of linoleic acid in biopolymer matrices: Effects of the physical state, water activity, and quercetin on oxidative stability

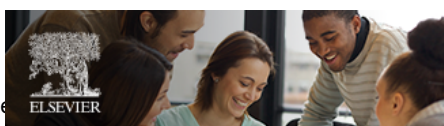
(2012) *Journal of Encapsulation and Adsorption Sciences*, 2 (1), pp. 1-10. Cited 8 times.
2161-4865 2

- ☐ 36 Devi, N., Kakati, D.K.
Smart porous microparticles based on gelatin/sodium alginate polyelectrolyte complex

(2013) *Journal of Food Engineering*, 117 (2), pp. 193-204. Cited 49 times.
doi: 10.1016/j.jfoodeng.2013.02.018

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